AMENDMENT TO THE CLAIMS

1-16. (canceled)

17. (currently amended): A radar level transmitter for providing level detection of materials in a container, the transmitter comprising:

an antenna;

a transceiver coupled to the antenna and configured to transmit a microwave pulse having a transmit pulse amplitude using the antenna and produce a signal representing reflected wave pulses;

a microprocessor system coupled to the transceiver and adapted to control the transceiver and process the signal;

a threshold calculation module executable by the microprocessor system and adapted to receive information related to properties of the materials and calculate a first threshold value as a function of the transmit pulse amplitude and the information related to properties of the materials; and

a level calculation module executable by the microprocessor system and adapted to establish a level of a first material interface using the signal and the first threshold value.

18. (currently amended): The radar level transmitter of claim 17, wherein:

the threshold calculation module is further adapted to calculate a second threshold value as a function of the transmit pulse amplitude and the information related to properties of the materials; and

the level calculation module is further adapted to calculate

a level of a second material interface using the signal
and the second threshold value.

19. (previously presented): The radar level transmitter of claim
17, including an input/output port adapted to transmit a level
output that is indicative of the first material interface.

20. (previously presented): The radar level transmitter of claim
17, including a dielectric constant calculator adapted to
calculate a dielectric parameter relating to one of the
properties of the materials as a function of the transmit pulse
amplitude and a first reflected wave pulse corresponding to a
portion of the microwave pulse reflected at the first material
interface, and provide the dielectric parameter to the threshold
calculation module for use in establishing the level of the first
material interface.

21-24. (canceled)

25. (currently amended): The ~~method~~ radar level transmitter of
claim ~~24~~17, wherein the ~~estimated~~ first threshold ~~reflected pulse~~
~~amplitude~~ is further calculated as a function of at least one of
an attenuation factor and a range factor.

26. (currently amended): The radar level transmitter~~method~~ of
claim ~~24~~ 17 ~~including calculating the estimated first reflected~~
~~pulse amplitude as a further function of~~wherein the information
related to properties of the materials comprises:
    a first dielectric parameter having a value corresponding to
        a dielectric of a first material adjacent to the~~an~~
        antenna; and

a second dielectric parameter having a value corresponding
to a dielectric of a second material located below the
first material.

27-28. (canceled)

29. (currently amended): The ~~radar~~ level transmitter~~method~~ of
claim ~~27~~26, wherein the threshold calculation module further
calculates a second threshold value~~further comprising~~

~~calculating an estimated second reflected pulse amplitude as~~
~~a function of the reference amplitude, the correction~~
~~factor, the first dielectric parameter, the second~~
~~dielectric parameter, and a third dielectric parameter~~
~~having a value~~ corresponding to a ~~dielectric of a~~ third
material located below the second material.

30. (canceled)

31. (currently amended): The ~~radar~~ level transmitter~~method~~ of
claim 29, wherein the ~~estimated~~ second ~~reflected pulse~~
~~amplitude~~threshold is ~~further~~ calculated as a function of at
least one of an attenuation factor and a range factor.

32. (currently amended): The ~~radar~~ level transmitter~~method~~ of
claim ~~27~~17, wherein the threshold calculation module further
~~comprising calculating~~ calculates a fiducial threshold value
formed between the antenna and a first material~~n estimated~~
~~fiducial pulse amplitude as a function of the reference~~
~~amplitude, the correction factor, and the first dielectric~~
~~parameter~~.

33. (canceled)

34. (currently amended): The radar level transmitter~~method~~ of claim 32, wherein the ~~estimated~~ fiducial ~~pulse amplitude~~threshold value is further calculated as a function of at least one of an attenuation factor and a range factor.

35. (currently amended): ~~A method for automatically setting threshold values for use by a microwave level transmitter to detect reflected pulses corresponding to portions of a transmitted microwave pulse, the method comprising~~The radar level transmitter of claim 17 wherein the threshold calculation module calculates the first threshold based upon:
   ~~selecting~~ a first dielectric parameter corresponding to a dielectric of a first material adjacent ~~an~~the antenna;
   ~~setting~~ a reference amplitude relating to the transmit~~ted microwave~~ pulse amplitude; and
   ~~setting~~ a second dielectric parameter ~~to a value~~ corresponding to a dielectric of a second material located below the first material;
   ~~calculating a first pulse amplitude as a function of the reference amplitude, and the first and second dielectric parameters; and~~
   ~~setting a first threshold value as a function of the calculated first pulse amplitude.~~

36. (canceled)

37. (currently amended): The radar level transmitter ~~method~~ of claim ~~35~~17, wherein the first threshold value is further a function of at least one of ~~an attenuation factor, a range factor,~~ an offset value~~,~~ and temperature.

38. (canceled)

39. (currently amended): The radar level transmitter~~methed~~ of claim ~~35~~17 ~~including setting a correction factor~~, wherein the first threshold~~pulse amplitude~~ is calculated as a function of ~~the~~ a correction factor.

40-42. (canceled)

43. (new) The radar level transmitter of claim 17 wherein the information related to properties of the materials is received from an operator.

44. (new) The radar level transmitter of claim 17 wherein the information related to properties of the materials is received over a process control loop.

45. (new) The radar level transmitter of claim 17 wherein the first threshold is further calculated as a function of a temperature.